

CLAIMS

1. A system for enabling verbal communication on behalf of a local entity with a nearby
5 user, the system comprising:
- location determining means for determining the location of the user,
 - comparison means for comparing the location of the user with the known locations of
entities having associated voice services, these voice services being separately hosted
from the entities themselves;
 - 10 - a communications infrastructure;
 - audio output means operatively connected to the communication infrastructure and
either forming part of equipment carried by the user or located in the locality of said
local entity;
 - a voice service arrangement for providing said voice service, the voice service
15 arrangement being connected to said communications infrastructure; and
 - service initiation means, responsive to the comparison means determining that the user
is close to a said entity, to initiate, automatically or under user control, voice service
delivery by the voice service arrangement via the communications infrastructure and
the audio output means with the voice service acting as voice proxy for the local entity;
 - 20 the audio output means comprising multiple sound output devices spaced from the local
entity, and means for controlling their sound output such that output from the voice service
appears to the user to emanate from said local entity.
2. A system according to claim 1, wherein the comparison means is separate from any
25 equipment carried by the user, the service initiation means comprising:
- means responsive to the comparison means determining that the user is close to a said
entity, to send contact data for the voice service to the user; and
 - means, provided in user equipment intended carried by the user, for receiving the
contact data and for enabling the user to contact the voice service arrangement using
30 the contact data in order to initiate voice service delivery.

3. A system according to claim 1, wherein the comparison means is separate from any equipment carried by the user and the voice service arrangement comprises storage means for storing voice service content, and a voice browser for interpreting voice service content in respect of multiple different voice services for which content is stored by the storage means, the service initiation means being responsive to the comparison means determining that the user is close to a said entity, to pass contact data for the corresponding voice service to the voice browser of the voice service arrangement.
4. A system according to claim 1, further comprising user equipment adapted to communicate with the communications infrastructure over wireless means, the comparison means being separate from the user equipment and the service initiation means being responsive to the comparison means determining that the user is close to a said entity, to pass contact data for the user equipment to the voice service arrangement to enable the latter to initiate contact with the user over the communications infrastructure.
5. A system according to claim 1, further comprising user equipment adapted to communicate with the communications infrastructure over wireless means, at least the comparison means and the service initiation means being provided in the user equipment, the service initiation means being responsive to the comparison means determining that the user is close to a said entity, to contact the voice service arrangement over the communications infrastructure.
6. A system according to claim 1, further comprising audio input means operatively connected to the communications infrastructure and either forming part of equipment carried by the user, or located in the locality of said local entity, the audio input and output means together enabling a user to interact with the voice service through spoken dialog with voice input by the user through the audio input means and voice output to the user through the audio output means.
7. A system according to claim 6, wherein in said dialog the entity is represented in first person terms through the voice service.

8. A system according to claim 6, wherein both the audio input and output means form part of the user equipment carried by the user, the user equipment being operative to exchange said voice input and voice output with the voice service as voice signals passed across the communications infrastructure.

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9. A system according to claim 6, wherein both the audio input and output means are located in the locality of said entity apart from the user equipment, the voice service arrangement being operative to exchange said voice input and voice output with the audio input and output devices as voice signals passed across the communications infrastructure.

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10. A system according to claim 6, wherein the audio input means forms part of equipment carried by the user and the audio output means is located in the locality of said entity apart from the user equipment, the voice service arrangement being arranged to exchange said voice input and voice output with the audio input and output devices as voice signals across the communications infrastructure.

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11. A system according to claim 1, wherein said multiple sound output devices are headphones worn by the user, the location of the voice service sound output in the audio field generated by the headphones being controlled to take account of the relative positions of the user and entity and rotations of the user's head.

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12. A system according to claim 1, wherein said multiple sound output devices are loudspeakers associated with the locality of the entity rather than with the user and connected with the voice service through a communications infrastructure., the sound output from the loudspeakers being controlled in dependence on the relative positions of the user and entity.

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13. A system according to claim 6, wherein the voice service arrangement comprises:

- a voice page server for serving voice pages in the form of text with embedded voice markup tags; and
- a voice browser comprising:
 - a speech recognizer for carrying out speech recognition of user voice input

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received as voice signals;

- a dialog manager for effecting dialog control on the basis of output from the speech recognizer and pages served by the voice page server; and
- a text-to-speech converter operative to convert voice pages into voice output signals under the control of the dialog manager.

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14. A system according to claim 8, wherein the user equipment comprises a mobile phone providing the said audio input and output means, with wireless communication means of the mobile phone serving for the transfer of voice service input and output to and from the said audio input and output means.

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15. A system according to claim 8, wherein the voice service arrangement comprises:

- a voice page server for serving voice pages in the form of text with embedded voice markup tags; and

15 - a voice browser comprising:

- a speech recognizer for carrying out speech recognition of user voice input received as voice signals;
- a dialog manager for effecting dialog control on the basis of output from the speech recognizer and pages served by the voice page server; and
- a text-to-speech converter operative to convert voice pages into voice output signals under the control of the dialog manager;

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the user equipment comprising a mobile phone providing said audio input and output means, with wireless communication means of the mobile phone serving for the transfer of voice service input and output to and from the said audio input and output means.

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16. A system according to claim 15, wherein the voice browser is not part of the user's equipment, the service initiation means being responsive to the comparison means determining that the user is close to a said entity, to pass contact data for the voice service, in the form of a URL, to the user's equipment, the user equipment being operative to pass the contact data to the voice browser via a data-capable bearer circuit set up by the mobile phone through the communications infrastructure, and the voice browser being operative to use the contact data to contact the voice page server and being further operative to establish

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a voice circuit with the mobile phone for the exchange of voice input and/or output between the user and voice browser.

17. A system according to claim 15, wherein the voice browser is not part of the user's
5 equipment, the service initiation means being responsive to the comparison means
determining that the user is close to a said entity, to pass contact data for the voice service,
in the form of a URL, to the user's equipment, the user equipment being operative to pass
the contact data to the voice browser via a data-capable bearer circuit set up by the mobile
phone through the communications infrastructure, and the voice browser being operative to
10 use the contact data to access the voice page server and to thereafter use the data-capable
bearer circuit for voice input and/or output between the user and voice browser using a
packetized voice protocol.

18. A system according to claim 15, wherein the voice browser is part of the user's
15 equipment, the service initiation means being responsive to the comparison means
determining that the user is close to a said entity, to pass contact data for the voice service,
in the form of a URL, to the user's equipment, the voice browser being operative to use the
contact data passed to the equipment to access the voice page server via a data-capable
bearer circuit set up by the mobile phone through the communications infrastructure for the
20 exchange of text based input and/or output between the voice browser and voice page
server.

19. A system according to claim 15, wherein the voice browser is not part of the user's
equipment, the service initiation means being responsive to the comparison means
25 determining that the user is close to a said entity, to pass contact data for the voice service,
in the form of a URL, directly to the voice browser together with information for
contacting the user's equipment, the voice browser being arranged to contact the user on
the mobile phone using a voice circuit or data connection that is then used for voice
input/or and output between the user and voice browser.

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20. A system according to claim 1, wherein the communications infrastructure is a
proprietary-space local wireless network hosting the voice service arrangement, the local

entity being located in the proprietary-space concerned.

21. A system according to claim 8, wherein the communications infrastructure is a proprietary-space local wireless network hosting the voice service arrangement, the local
5 entity being located in the proprietary-space concerned and the user equipment comprising a wireless headset.

22. A system according to claim 20, wherein said audio output means comprises headphones worn by the user, the location of the voice service sound output in the audio
10 field generated by the headphones being controlled to take account of the relative positions of the user and entity and rotations of the user's head such that the sound output appears to be originating from said local entity.

23. A system according to claim 1, wherein the location determining means and the
15 comparison means are arranged to operate on an on-going basis.

24. A method according to claim 1, wherein the location determining means and the comparison means are arranged to operate on a once-off basis as requested by the user.

25. A system according to claim 1, wherein the voice service arrangement is operative to connect a user newly contacting the voice service associated with said entity, into a session with any other users currently using the voice service in respect of the same local entity such that all users at least hear the voice output of the voice service.

26. A system according to claim 25, wherein the voice service arrangement is so arranged that voice input from a user is not broadcast to other users joined in the same session unless that input is selected for handling by the voice service.

27. A system according to claim 1, wherein the voice service arrangement is operative to
30 connect a user newly contacting the voice service into a session with any other users currently using the voice service in respect of the same local entity and other entities that have been logically associated with that entity, the voice inputs and outputs to and from the

voice service being made available to all such users.

28. A system according to claim 1, further comprising functionality associated with the local entity and arranged to be controlled by control data passed to it from the voice
5 service.

29. A system according to claim 28, wherein said functionality includes a mouth-like feature movable by in dependence on the control data from the voice service whereby to cause operation of the mouth-like feature in synchronism with voice output from the voice
10 service.

30. A system according to claim 1, further comprising means for sensing the position of the user relative to the entity, and means for passing corresponding position data to the voice service, the voice service being operative to condition its output in dependence on
15 the user's sensed position.

31. A system according to claim 1, further comprising means for sensing the orientation of the user relative to the entity, and means for passing corresponding orientation data to the voice service, the voice service being operative to condition its output in dependence on
20 the user's sensed orientation.

32. A system according to claim 1, further comprising means for sensing the line of approach of the user relative to the entity, and means for passing corresponding line-of-approach data to the voice service, the voice service being operative to condition its output
25 in dependence on the user's line of approach.

33. A method of voice communication concerning a local entity wherein:
(a) the location of a user is determined and compared with the known locations of entities having associated voice services, these voice services being separately hosted from the
30 entities themselves;
(b) upon the user being determined to be close to a said entity, contact is initiated between the user and the voice service associated with the local entity; and

(c) the user interacts with the voice service with the latter acting as voice proxy for the local entity, voice output from the service being through audio output devices spaced from the local entity but controlled such that the service output appears to the user to emanate from that entity.

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34. A method according to claim 33, wherein step (a) is effected by a service system separate from any equipment carried by the user; the service system upon determining that the user is close to a said entity, effecting step (b) by passing contact data for the voice service to the user whereby to enable the user to contact the voice service.

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35. A method according to claim 33, wherein step (a) is effected by a service system separate from any equipment carried by the user, the service system upon determining that the user is close to a said entity, effecting step (b) by passing contact data for the voice service to a voice browser of the service system or communications infrastructure whereby
15 to enable the voice browser to contact the voice service on behalf of the user.

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36. A method according to claim 33, wherein step (a) is effected by a service system separate from any equipment carried by the user, the service system upon determining that the user is close to a said entity, effecting step (b) by passing user contact information to
20 the voice service whereby to enable the latter to initiate contact with the user.

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37. A method according to claim 33, wherein step (a) is effected by equipment carried by the user which, upon determining that the user is close to a said entity, effects step (b) by contacting the voice service.

38. A method according to claim 33, wherein in step (c) the user and voice service interact through spoken dialog with both voice input by the user and voice output by the service.
39. A method according to claim 38, wherein in said dialog the entity is represented in
30 first person terms through the voice service.

40. A method according to claim 33, wherein step (c) involves voice input by the user and voice output by the service with both voice input and voice output being carried across the wireless network between the voice service and sound input and output devices forming part of the user's equipment.

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41. A method according to claim 33, wherein step (c) involves voice input by the user and voice output by the service with both voice input and voice output being exchanged with the user by local sound input and output devices that are associated with the locality of the entity rather than with the user and are connected with the voice service through a
10 communications infrastructure.

42. A method according to claim 33, wherein step (c) involves voice input by the user and voice output by the service, voice input being carried across the wireless network to the voice service from a sound input device forming part of the user's equipment, and voice
15 output being through at least one local sound output device that is associated with the locality of the entity rather than with the user and is connected with the voice service through a communications infrastructure.

43. A method according to claim 33, wherein said multiple sound output devices are
20 headphones worn by the user, the location of the voice service sound output in the audio field generated by the headphones being controlled to take account of the relative positions of the user and entity and rotations of the user's head.

44. A method according to claim 33, wherein said multiple sound output devices are
25 loudspeakers associated with the locality of the entity rather than with the user and connected with the voice service through the communications infrastructure, the sound output from the loudspeakers being controlled in dependence on the relative positions of the user and entity.

45. A method according to claim 33, wherein the voice service is effected by the serving
30 of voice pages in the form of text with embedded voice markup tags to a voice browser, the voice browser interpreting these pages and carrying out speech recognition of user voice

input, text to speech conversion to generate voice output, and dialog management; the voice browser being disposed between a voice page server and the user.

46. A method according to claim 33, wherein the user equipment includes a mobile phone,
5 step (c) involving use of the mobile phone to transfer voice service input and output to and from the user.

47. A method according to claim 33, wherein:

- 10 - the voice service is effected by the serving of voice pages in the form of text with embedded voice markup tags to a voice browser, the voice browser interpreting these pages and carrying out speech recognition of user voice input, text to speech conversion to generate voice output, and dialog management; the voice browser being disposed between a voice page server and the user; and
- 15 - the user has equipment including a mobile phone, step (c) involving use of the mobile phone to transfer voice service input and output to and from the user.

48. A method according to claim 48, wherein the voice browser is not part of the user's equipment and in step (b) contact data for the voice service, in the form of a URL, is passed to the user's equipment from where it is passed using the mobile phone via a data-capable bearer service of the mobile-phone wireless network, to the voice browser, the
20 voice browser calling the user on the mobile phone using a voice circuit that is then used in step (c) for voice input and/or output between the user and voice browser.

49. A method according to claim 48, wherein the voice browser is not part of the user's equipment and in step (b) contact data for the voice service, in the form of a URL, is passed to the user's equipment from where it is passed using the mobile phone, via a data-capable bearer service of the mobile-phone wireless network, to the voice browser; the data-capable bearer service being subsequently used in step (c) for voice input and/or output between the user and voice browser using a packetized voice protocol.

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50. A method according to claim 48, wherein the voice browser is part of the user's equipment and in step (b) contact data for the voice service, in the form of a URL, is

passed to the user's equipment, the voice browser using this contact data in step (b) to access, via a data-capable bearer service of the mobile-phone wireless network, the voice page server; the data-capable bearer service being subsequently used in step (c) for passing text based input and/or output between the voice browser and voice page server.

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51. A method according to claim 48, wherein the voice browser is not part of the user's equipment and in step (b) contact data for the voice service, in the form of a URL, is passed directly to the voice browser together with information for contacting the user's equipment, the voice browser contacting the user on the mobile phone using a voice circuit
10 or data connection that is then used in step (c) for voice input/or and output between the user and voice browser.

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52. A method according to claim 33, wherein a proprietary-space local wireless network hosts the voice service, the local entity being located in the proprietary-space concerned .

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53. A method according to claim 52, wherein the user has a wireless headset which in step (c) is used for exchanging voice input and output with the voice service.

54. A method according to claim 33, wherein the carrying out of step (b) is subject to user
20 approval at the time.

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55. A method according to claim 33, wherein location determination and comparison with the known location of entities having associated voice services, is effected in step (a) on an on-going basis.

56. A method according to claim 33, wherein location determination and comparison with the known location of entities having associated voice services, is effected in step (a) on a once-off basis as requested by the user.

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57. A method according to claim 33, wherein in step (b) the identity of the user is sent to the voice service and used by the latter to look up user profile data which is then used to customise the voice service to the user.

58. A method according to claim 33, wherein the user on being placed in contact the voice service in step (b) is joined into a session with any other users currently using the voice service in respect of the same local entity such that all users at least hear the voice output
5 of the voice service.

59. A method according to claim 58, wherein voice input from a user is not broadcast to other users joined in the same session unless that input is selected for handling by the voice service.
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60. A method according to claim 33, wherein the user on being placed in contact the voice service in step (b) is joined into a session with any other users currently using the voice service in respect of the same local entity and other entities that have been logically associated with that entity, the voice inputs and outputs to and from the voice service being
15 made available to all such users.

61. A method according to claim 33, wherein the local entity has associated functionality that is controlled by control data passed from the voice service via a network connection or short-range link between the user equipment and said associated functionality of the local entity.
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62. A method according to claim 61, wherein the local entity has an associated mouth-like feature movable by said functionality, the control data from the voice service being used to cause operation of the mouth-like feature in synchronism with voice output from the voice
25 service.

63. A method according to claim 33, wherein the voice service provided to a user is dependent on the user's position, orientation or line of approach relative to the entity.